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JAMES H. B. BLAND,
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Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

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ENTOMOLOGICAL NEWS

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Stelis permaculata Ckll., a Parasite of Heriades carinatus Cress. (Hymen.: Stelididae and Megachilidae).

By CHARLES H. HICKS, University of Colorado, Boulder, Colorado.

Many females of *Heriades carinatus* Cress.* were observed nesting in tunnels in old cottonwood stumps, along irrigation ditches on the plains east of Boulder, Colorado, during July and August, 1926. The stumps, free from bark, contained many small holes and tunnels made by coleopterous larvae which served as nesting places for bees and wasps. The tunnels used by *H. carinatus* were found in the harder wood; those in the parts soft from decay being used very little or not at all. The bee nested on all sides of the stump; the north side, however, being used the least. The entrance to the tunnel, after the bee had finished preparing and provisioning the nest, was sealed with a small plug of resin, material which was also used for partitions.

On August 2, a female was seen carrying out old pieces of wood and remains of a former nest. The hole to the outside was a little more than one millimeter in diameter, barely larger than the bee. While working she would back out, carrying the debris in her mandibles, and would drop it a few inches from the nest. This was usually done while she was on the wing, although sometimes she turned about and dropped it while holding on to the sides of the stump with her feet. The material was not excavated but removed, for all evidence points to the use of tunnels already made.

The entrance to the nest was marked with a circle of ink and some observations made on the bee. On August 3, the nest was not watched. On August 4, the bee was collecting

*This bee and its parasite have been determined by Professor T. D. A. Cockerell.

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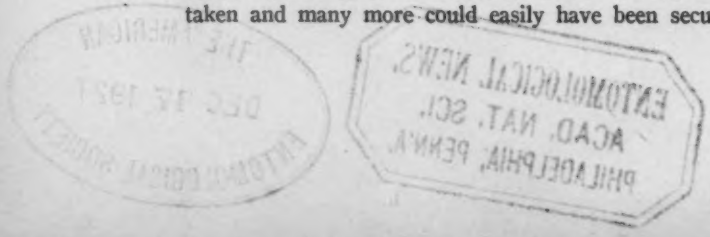
pollen all forenoon. She would enter head first, stay for a few seconds, then back out. Turning around on the outside, she would then insert her abdomen into the entrance and while holding on by her feet and assisted by her wings would back inside out of view. This was repeatedly observed and it was always found that the first entrance was to deposit nectar or inspect the nest; the second to deposit the pollen from the ventral scopa. The tunnel was so narrow, in most instances, that the bee was compelled to come out and back in, in order to place the pollen in the cell.

An estimate of the average period of time spent collecting pollen, depositing it and the like was made. The bee was found to remain within for about 30 seconds following the first entrance after each collecting trip; 55 seconds were spent depositing the pollen; and 12 minutes for each trip to the fields collecting pollen.

At this nest and other nests of this stump and others, specimens of a *Stelis* parasite were observed flying about or entering the tunnels. This species is *Stelis permaculata* Ckll., a common parasite here of *H. carinatus*. The habits of this parasite have been observed to some extent.

One *S. permaculata* female entered the nest of *H. carinatus* while the latter was away. She went into the tunnel head first, backing out after a few seconds. Immediately she turned about, placing her abdomen in the hole much as the host does in depositing pollen, and backed in out of sight. A vial was then placed over the entrance and this individual taken on leaving 36 seconds later. The purpose of backing in was doubtless to lay an egg, for there seems no other reasonable explanation for such an action. Other females of this species were found to enter nests of *H. carinatus* and I have since opened the tunnels of many, taken from these stumps and located by the outer resin plug, and have found the larvae of *H. carinatus* and the cocoons of *S. permaculata*. The cocoon looks very much like the cocoons of *S. sexmaculata* and other *Stelis* cocoons. *S. permaculata* has not before been found common, although this summer a number of specimens were taken and many more could easily have been secured.



On August 4, I observed a specimen of *H. carinatus* working for a long time at an outer resin plug, some 8 feet above the ground. While she was working another female of the same species clashed upon the one at work, both falling to the ground. A few minutes later one was caught while working at the resin. Soon the other returned and worked until I took her 15 minutes later. Both were working at the same entrance but whether each used the same tunnel for nesting is not known. A single female has been found to each nest observed, with this one exception. It does not seem probable that one was stealing the resin from another or that it was being eaten, for later observations showed no repetition of this association.

A number of nests of *H. carinatus* have been studied. They are irregular tunnels varying in length. One had a resin plug 2 mm. thick filling the entrance, followed by an empty space of 5 mm., and again a resin plug of 4 mm. The cells were below this and were separated by thin partitions of resin from .5 to 1.2 in thickness. The resin is sometimes very light and again quite yellow or almost brown. The dark color, especially in the case of the plugs, may be due to the bee having used older resin or to the effects of weather conditions. The fact that the bee nests in the harder parts of the wood makes it rather difficult to take the nests without injury to the larvae. However, during the fall and winter mature insects, both of the host and of the parasite, have been reared in the laboratory. The development has been materially hastened by the increased temperature of the laboratory.

An account of the habits of the bees of the genus *Heriades* (written *Eriades*) of Europe has been given by Friese.* Under the name *Eriades* he also includes the two genera, *Chelostoma* and *Trypetes*.

These bees have been found nesting in holes in posts, beams, trunks of trees, straw roofs, in the loam walls of houses and have been considered to use, in most cases, tunnels already constructed. Friese states that the name, "Bohrbiene"

*Friese, H., Die Europäischen Bienen (Apidae). Berlin und Leipzig. 1923.

(*Trypetes*) by Schenck, is probably due to the assumption that the animals drill new holes into old trunks of trees but states that he has never been able to observe this. Sometimes the side tunnels of the nest of an *Odynerus* are appropriated or again that of some "wood wasp." The partitions between the cells are made of loam, sand and pebbles, but apparently the species do not use resin as does *H. carinatus* here.

The larvae of most European species, if not all, spin a cocoon. This is likewise true of *H. carinatus,* the cocoon being thin and much larger than the animal. About the cocoon, usually near the ends, is found the excrement, between it and a partition of resin. Bees of the genus *Stelis* have been found parasitic on bees of the genus *Heriades* in Europe. These parasitic forms resemble very much the host in appearance.

According to Friese, *Stelis minima* is parasitic on *Eriades campanularum; S. pygmaea* on *E. truncorum;* and the wasp, *Sapyga clavicornis* on *E. florisomnis.* The fly, *Anthrax aethiops,* and a hymenopteron of the genus *Gasteruption* are also parasites of *Eriades.*

What is the First Insect known from North America?

By S. A. Rohwer, U. S. National Museum.

A few weeks ago, Professor E. O. Essig asked Dr. Howard to express an opinion on what insect was first described from America. The matter was referred to my office for attention and was written up in some detail. Dr. Essig suggested that it would be well for this record to be published so it would be available to all students, and inasmuch as other workers may be interested in this historical matter the following note is offered.

There are two ways to attack this problem. One would be the first reaction of the taxonomist, which would refer to the first insect which had nomenclatorial standing. To find the first insect described from America under this method of procedure, it is only necessary to consult the tenth edition of Linnaeus, published in 1758. We find that the very first insect described is a beetle, *Scarabaeus hercules,* which is said to come

from America, and is now known to occur in Central America, the Antilles, Guatemala and Ecuador. Restricting our inquiry to North American insects, we find that the first species to be validated nomenclatorially is the beetle now known as *Phileurus valgus* Linn. Other beetles which were described in the original edition are *Bruchus pisorum* (originally described from seeds of peas in America), *Silpha americana, Chrysomela philadelphica,* and *Alaus oculatus.* The first Nearctic Orthopteroid to be given standing in nomenclature is *Periplaneta americana* (Linn.); the first Lepidopteron, *Papilo ajax* Linn.; the first Heteropteron, *Dysdercus andreae* (Linn.); the first Hymenopteron, *Evania appendigaster* Linn.

From a historical point of view, this method of determining the oldest insect known from our region is hardly satisfactory, as the zoologists in general very often go back of the tenth edition of Linnaeus in matters of historical interest. Without delving deeply into the subject, it would seem that one of the first—if not the first—insects to be definitely recorded from America is the cochineal insect, *Coccus cacti.* This species undoubtedly was described in many of the early Spanish accounts of exploration. It was definitely mentioned as a kind of kermes by Martin Lister in 1672, and definitely recognized as an insect by Antony Van Leeuwenhoek in 1705.

Occurring along with the original technical descriptions of many insects in the tenth edition, there are references to earlier publications on these animals, and we find in the Coleoptera references to literature on the very first form known to have been described dating back to Roesslin, 1557 to 1616, and Marcgraf, 1648; but these references apparently do not refer to the insect as it occurs in its native habitat.

Mr. Caudell, in looking up the matter of the earliest known Orthopteron, submitted the following note:

"*Gryllus gryllotalpa* Catesby, Nat. Hist Car., vol. 1, plate viii (1731).

"This is the earliest American Orthopteron noted so far as I know, though the works of Madam Maria Sibylla Merian may contain some and are earlier, 1705.

"*Blatta molendinaria* Moufet, Ins. Anim. Theatr., p. 138, fig.

1, 2 (1634), is older than the above and the insect is a synonym of *orientalis*, but the new world locality is not there mentioned. The first reference to this species known to me with America noted as the habitat is by Linnaeus in his Syst. Nat., ed. x, p. 424 (1785)."

A similar investigation into the Lepidoptera by Dr. Schaus failed to reveal any earlier reference to a lepidopterous insect.

With it all, however, to find out the first insect mentioned in literature as occurring in North America it would be necessary to read all of the early accounts of exploration, and of course this would be hardly worth while; but it seems very probable that all of these accounts will include some mention of the cochineal insect. It is therefore very likely that this is the first insect to be definitely recorded from America.

New Species of Mimetic Miridae from North America (Hemiptera).*

By HARRY H. KNIGHT, Ames, Iowa.

ORECTODERUS ARCUATUS, n. sp.—Smaller and more slender than *obliquus* Uhler, easily distinguished in the male by the arcuate pale mark formed by the pale of the cuneus joining with that along inner margin of corium; female distinguished by the strongly clavate second antennal segment and by the polished surface of abdomen.

♂. Length 6.7 mm., width, 1.9 mm. Head: width 1 mm., vertex .44 mm. Rostrum, length 2.3 mm., reaching to middle of intermediate coxae. Antennae: segment 1, length, .32 mm.; II, 1.88 mm., gradually thickened to clavate (.133 mm. thick) on apical half; III, 1.09 mm., slender; IV, .62 mm. Pronotum: length .86 mm., width at base 1.39 mm.; calli more prominent than in *obliquus*.

Black, shining except scutellum and mesoscutum, legs orange red, tibia paler, tarsi blackish; hemelytra including membrane and veins black, clavus exterior to claval vein, whitish translucent; corium bordering clavus and continuing around inner apical angle to join cuneus, basal one-third or more of cuneus, white, or whitish translucent. Clothed with simple fuscous pubescence.

*Contribution from the Department of Zoology and Entomology Iowa State College, Ames, Iowa.

♀. Length 4.8 mm., brachypterous, width of abdomen 1.6 mm. Head: width 1.15 mm., vertex .58 mm., from tip of tylus to dorsal margin of eye 1.18 mm., height of eye .53 mm., width of eye .33 mm. Rostrum, length 2.22 mm., reaching to base of hind coxae. Antennae: segment I, length .33 mm.,; II, 1.81 mm., slender on basal half, sharply clavate on apical third, thickness .20 mm.; III, broken; orange red, the clavate portion fuscous to blackish. Pronotum: length .89 mm., width at base .95 mm., width at middle .86 mm., constricted immediately in front of basal angles, broadly convex anteriorly, margins set with several, heavy, black bristles, coxal cleft visible from above. Hemelytra represented by short pads which beyond apex of scutellum are bent sharply erect, much as in *obliquus*. Abdomen subglobose beginning with third segment, polished and shining, rather sparsely clothed with fine yellowish pubescence, black, posterior margin of second tergite yellowish white. Head, thorax, and legs, orange red to dusky, tarsi blackish; wing pads fuscous, paler along the poorly defined claval suture.

Holotype: ♂ May 17, 1923, Ritzville, Washington (M. C. Lane); U. S. National Museum collection. *Allotype*: ♀ May 16, topotypic; U. S. N. M. collection. *Paratypes*: ♂ ♀ May 12, topotypic. ♂ "Colo. 1690." Several nymphs taken May 1 are also present from the type locality.

COQUILLETTIA JESSIANA, n. sp.—Allied to *balli* Kngt., but differs in the longer second antennal segment which exceeds width of pronotum at base, and in having membrane pale at base. Coloration suggestive of *insignis* Uhler but differs in the small size and in the female by the polished and shining body.

♂. Length 4.7 mm., width across base of cuneus 1.33 mm. Head: width .80 mm., vertex .32 mm., from tip of tylus to dorsal margin of eye .74 mm. Rostrum, length 1.4 mm., reaching to near hind margin of sternum. Antennae: segment I, length .26 mm.; II, 1.42 mm.; III, 1.21 mm.; IV, .72 mm. Pronotum: length .78 mm., width at base 1.15 mm.; from base of pronotum to tip of tylus 1.61 mm., greater than length of second antennal segment.

Coloration dark fuscous brown, head and scutellum more brown than fuscous, with tylus, lora, and juga orange brown; basal two-thirds of corium and clavus, and basal one-third of cuneus, white, the apical portions black; the black apical band

of corium cut squarely across its anterior margin, the edge of the black color more sharply defined than in *insignis*.

♀. Length 4.4 mm., brachypterous, width across abdomen 1.4 mm. Head: width .96 mm., vertex .56 mm. Rostrum, length 1.66 mm., reaching between intermediate coxae. Antennae: segment I, length .28 mm.; II, 1.68 mm.; III, 1.27 mm.; IV, .69 mm. Pronotum: length .72 mm., width .80 mm. Form very similar to *insignis* but distinguished by the polished and shining surface; sparsely pubescent, without a vestige of wings.

Holotype: ♂ August 26, 1925, Sterling, Colorado (H. H. Knight); author's collection. *Allotype*: same data as type. *Paratypes*: 10 ♂ 4 ♀, and nymphs, taken with the types by sweeping semiarid plains, grassland mixed with sage-brush (*Artemisia* sp.). 2 ♂ 1 ♀ July 22, 1900, Denver, Colorado (E. D. Ball). ♂ June 1, 1926, alt. 6000 ft., Chiricahua Mts., Arizona (A. A. Nichol).

I have dedicated this interesting species to my wife, Jessie Mae Knight, who has ever been unselfish in not restricting the time I would spend on scientific work.

COQUILLETTIA MIMETICA FLORIDANA, n. subsp.—Coloration similar to typical *mimetica* Osborn, but differs in the smaller size, more slender form and broader head.

♂. Length 5.1 mm., width at base of cuneus 1.24 mm. Head: width .98 mm., vertex .46 mm. Rostrum, length 1.63 mm., not attaining hind margin of sternum. Antennae: segment I, .34 mm.; II, 2.04 mm.; III, 1.92 mm.; IV, 1 mm. Pronotum: length .86 mm., width at base 1.06 mm. Distinguished by width of head being greater than length of pronotum; width of head also nearly equal to width of pronotum at base.

Holotype: ♂ July 24, 1926, Seebring, Florida (E. D. Ball); author's collection. *Paratype*: ♂, taken with the type.

While *floridana* can be separated from *mimetica* Osb. by as good structural characters as certain other species of the genus, its general aspect is so near that of *mimetica* that the position of subspecies more accurately expresses its relationship among other members of the genus. It is interesting to note that Dr. Ball has also taken typical *mimetica* Osb. in Florida (2 ♂ 1 ♀ May 15, 1926, Sanford), which indicates that there may be no

intermediate forms showing a gradual transition from *mimetica* to *floridana*. The connecting links in the evolution of *floridana* may already have disappeared.

COQUILLETTIA MIMETICA LATICEPS, n. subsp.—♂. Coloration nearly as in *mimetica* Osborn, but form smaller and less elongate; head broader, eyes more protruding, width of head distinctly greater than length of pronotum. In *mimetica* the width of head scarcely equals length of pronotum. Differs from *floridana* in the distinctly protruding eyes which rise sharply above the general contour of frons and vertex; also differs in the relatively shorter and broader form.

Length 5.2 mm., width 1.3 mm. Head: width 1.01 mm., vertex .37 mm. Rostrum, length 1.57 mm., scarcely attaining posterior margin of sternum. Antennae: segment I, length .32 mm.; II, 2.04 mm.; III, 1.63 mm.; IV, .92 mm. Pronotum, length .88 mm., not equal to width of head, width at base 1.3 mm.

♀. Length 5.2 mm., wingless, width of abdomen 1.5 mm. Head: width 1.03 mm., vertex .56 mm., from tip of tylus to dorsal margin of eye .88 mm., postocular space .207 mm. Antennae: segment I, length .33 mm.; II, 1.83 mm.; III, 1.48 mm.; IV, .90 mm. Pronotum, length .83 mm., width .77 mm. Differs from *mimetica* in the narrower postocular space, which is much less than the lateral width of an eye (.33 mm.). In *mimetica* the postocular space is equal to lateral width of an eye.

Holotype: ♂ August 6, Delhi, Colorado (C. J. Drake); author's collection. *Allotype*: August 16, 1925, Sugar City, Colorado (Beamer & Lawson); Kansas University Collection. *Paratypes*: ♂ 2♀, taken with the allotype. 2♂ Aug. 14, 1925, Olney, Colorado (Beamer & Lawson). ♂ June 26, 1920, Fort Collins, Colorado (Geo. M. List).

SERICOPHANES FLORIDANUS, n. sp.—Distinguished by the small size and dark color; suggestive of *heidemanni* Popp., but female with prothorax more cylindrical than globose, venter white beneath except first two segments and lateral margins.

♀. Length 2.4 mm., brachypterous, width of abdomen .87 mm.; length of hemelytra .68 mm. Head: width .56 mm., vertex .355 mm. Rostrum, length .98 mm., reaching to base of hind coxae. Antennae: segment I, length .17 mm.; II, .83 mm.; III, .56 mm.; IV, .50 mm. Pronotum, length .44 mm., width at middle .43 mm., coxal clefts visible from above, pro-

thorax widest at that point; strongly and evenly convex, but more cylindrical than globose.

Coloration dark brownish black, having a dull waxen sheen, the short hemelytra with pruinose areas evident; front and hind coxae except base, pale, venter white beneath except first two segments and lateral margins.

♂. Length 2.6 mm., width at base of hemelytra .68 mm. Head: width .50 mm., vertex .28 mm. Rostrum, length .92 mm., reaching to middle of hind coxae. Antennae: segment I, length .17 mm.; II, .77 mm.; III, .56 mm.; IV, .44 mm. Pronotum, length .50 mm., width at base .71 mm.

Form and coloration very similar to *heidemanni* but distinguished by the small size, the female giving the best characters for separating the species.

Holotype: ♀ April 9, 1926, Sanford, Florida (E. D. Ball); author's collection. *Allotype*: ♂ Aug. 25-30, 1925, Sanford, Florida (E. D. Ball); author's collection. The writer is indebted to Dr. E. D. Ball for the collecting and presentation of this diminutive ant mimic.

RENODAELLA, New Genus.

Allied to *Renodaeus* Dist., tribe Renodaeini; arolia converging at apices as in *Ceratocapsus* and *Pilophorus;* genitalia of the complicated type as in *Ceratocapsus*. Head much like *Pilophorus,* but all the antennal segments thickened as in *Ceratocapsus,* segment II gradually thickened from base to apex, not suddenly enlarged at apex as in *Renodaeus*. Rostrum reaching between middle coxae. Pronotum much as in *Pilophorus,* shining, the base not covering mesoscutum as in *Renodaeus*. Scutellum moderately convex, mesoscutum strongly elevated, capped by the moderately down-curved basal margin of pronotum. Hemelytra set with heavy, black, bristle-like hairs, much as in *Renodaeus;* also set with patches of silvery, scale-like pubescence; dull, opaque, embolium and cuneus shining; clavus and corium distinctly elevated or convex, embolar margins only moderately sinuate. Membrane fully developed (♂). Genitalia complicated in structure much in the form of *Ceratocapsus*.

Genotype: ***Renodaella nicholi,*** new species.

RENODAELLA NICHOLI, n. sp.—♂. Length 3.2 mm., width 1.06 mm. Head: width .74 mm., vertex .326 mm.; eyes forming a part of the convex curve formed by front of head, basal margin of vertex sharp and overlapping anterior margin of pronotum as in *Pilophorus*. Rostrum, length 1.21 mm,. reaching to near hind margin of intermediate coxae. Antennae: segment I, length .18 mm., thickness .059 mm.; II, .60 mm., gradually thickened from base toward apex (.074 mm.); III, .37 mm., thickness .059 mm., more slender near base; IV, .385 mm., thickness .074 mm., fusiform; clothed with fine pale pubescence. Pronotum: length .74 mm., width at base .95 mm.; basal margin arcuate, disk rather strongly and evenly convex, higher on posterior half; lateral margins concave, sharply narrowed anteriorly, coxal clefts visible from above.

Dark brownish black to piceous, shining; hemelytra dull, more brownish, clavus and apical area of corium darker, embolium and cuneus strongly shining; membrane uniformly dark fuscous; coxae except apex of front pair, basal one-fourth of hind and middle femora, and apical one-third of tibiae, pale. Clothed with rather sparse, fine, pale to yellowish pubescence, vertex with four rather long pale hairs on base; clavus and corium set with long, erect black bristles, arranged in poorly defined rows. Hemelytra bearing several patches of silvery, scale-like hairs, the largest of which forms a short transverse band across corium just before apex of clavus, but stopping short of claval suture; a narrower band runs from outer basal angle of clavus toward apex of cuneus, also three or four smaller patches of silvery scales on apical half of clavus and on outer basal half of clavus. Genitalia distinctive, right clasper with an erect dorsal prong, acuminate on apical half with the tip somewhat decurved; also bearing two ventral, incurved hooks, the lower member of which is twice as large as the other; on inner basal part of clasper a third hook arises and points mesad. Left clasper with a prominent sharp hook near base which curves upward and forward, this followed by a sharp, needle-like spine just behind; the main stem of clasper, upon reaching median line of segment, turns dorsally and expands into a rather broad, thin, fish-tailed terminal portion.

Holotype: ♂ September 9, 1925, Santa Rita Mts., alt. 4500 ft., Arizona (A. A. Nichol); author's collection. Named in honor of the collector, Mr. Andrew A. Nichol.

An Additional Annotated List of Ants of Mississippi, with a Description of a New Species of Pheidole (Hym.: Formicidae).*

By M. R. SMITH, A. and M. College, Mississippi.

Since the publication of the writer's article, "An Annotated List of the Ants of Mississippi" in Volume 35 of the ENTOMOLOGICAL NEWS for 1924, 11 species of ants new to the State have been collected. Among this number is a new species of *Pheidole*. With the addition of these species our list of ants known for the State now includes 87 species. The writer believes that more intensive collecting in the northeastern, the southern and southwestern sections of the State will bring to light further species and probably several new ones.

The species new to our State list are given below in numerical sequence, with the usual notations or remarks accompanying each species. The new *Pheidole* is also described here.

Subfamily PONERINAE.

77.—PONERA OPACICEPS Mayr. Fayette, A. and M. College, Sibley, Bexley.

The worker of this ant bears a striking similarity to that of *Ponera coarctata* subsp. *pennsylvanica* Buckley, our most common eastern and northern species. The worker can be readily distinguished, however, by the finer and more contiguous punctation of the head. It measures about 3.10 mm. in length. Its color is generally black or very deep brown, with somewhat ferruginous or yellowish appendages and mouth parts. At Sibley, Mr. Andrew Fleming took alate males and females on June 5th, 1924. He remarks as follows concerning them. "I caught them while cultivating a tract near the creek. They were very numerous and annoying, swarming over my hands, face and neck." At Bexley a colony was found nesting in a cavity within a sweet potato on February 24, 1927. The cavity was thought to have been previously made by termites. Judging from the collections made in this section of

*A contribution from the Mississippi Agricultural Experiment Station.

the State this ant is not as common a species as *Ponera trigona* var. *opacior* Forel, but is more abundant than the following species.

78.—PONERA INEXORATA Wheeler. A. and M. College.

Only one colony of this ant has been found in the state. Wheeler remarks that the colonies are unusually small, seldom numbering over a dozen to a dozen and a half individuals. The workers taken from the colony mentioned above were found in the soil beneath a rotten limb. In the vicinity of the ants was found a small myrmecophilous beetle belonging to the family Pselaphidae. The workers of *inexorata* are ferruginous yellow throughout and measure from 2.75-3.25 mm. in length. They are about the size of the workers of *Ponera gilva* Roger but lack the sharply marginate sides of the epinotum of the latter species. The lateral borders of the mandibles of the worker of *inexorata* are concave or sinuate, an easily recognizable character.

79.—STRUMIGENYS LOUISIANAE Roger. Sibley.

This species was taken at Sibley on July 3, 1924, by Mr. Andrew Fleming, who wrote as follows concerning the ants, "I found a small nest in the cavity at the base of a small locust stump I had pulled up. I saw a winged form, presumably a female. It appeared to be a trifle larger and darker than the worker but I am not certain, as it was running rapidly and I failed to catch it. The workers are very slow in their movements. The stump was in a hillside thicket about ten feet from an open field." This species can be easily distinguished from all the other described North American forms by the elongate, subparallel mandibles of the worker, each of which bears at its apex two sub-equal teeth and posterior to these is a very small, faintly discernible tooth.

80.—SOLENOPSIS PICTA var. near MOERENS Wheeler. Sibley.

Workers of this species were sent to the writer by Mr. Andrew Fleming who took them from inside the twigs of a species of oak and from insect galls on red oak. Mr. Fleming states that this is one of the most common arboreal ants in that section of the state. These ants can be readily disting-

uished from any of the other species of *Solenopsis* occurring in the state by the black or deep brown color of the workers. At first sight, one not very familiar with ants might confuse this species with the tiny black ant, *Monomorium minimum* Buckley. The workers are, however, considerably smaller than those of the tiny black ant and have only a two-jointed distal club, whereas the tiny black ant has a three-jointed distal club.

81.—CREMATOGASTER OPACA var. PUNCTULATA Emery. A. and M. College, Sturgis.

The workers of this ant can be readily distinguished from the workers of other species of *Crematogaster* occurring in this State by the abundant and contiguous punctures which cover the posterior part of the head, the thorax. the petiole and the postpetiole. These punctuations give the body an opaque appearance. The epinotal spines are well developed and directed upward and backward. They are subparallel or parallel to each other. The ants nest in the ground and their colonies are rather numerous here at A. and M. College. The workers attend plant lice and mealy bugs, especially the subterranean forms. We have taken this ant in attendance on *Aphis gossypii* Glover on cotton, on the mealy bug, *Pseudaontonina* sp., on the roots of Johnson grass and on the mealy bug, *Trionymous* sp., on the roots of wild aster. The ants are often found trailing over the ground in single file where they are apparently in search of honey dew-excreting forms. A nest unearthed on February 24th, 1927, six inches below the surface of the ground, contained a dealated female, many workers and some partly grown larvae.

82.—PHEIDOLE DENTIGULA n. sp.—*Soldier*. Length: 2.25-2.5 mm.

Head, excluding the mandibles, longer than broad, about as broad in front as behind, with rounded posterior corners, angularly excised posterior border and distinct occipital groove, sides subparallel. Gula with two short, coarse, prominent teeth. Eyes placed near the anterior fourth of the head. Mandibles large, convex, with two distinct apical and two smaller basal teeth. Clypeus emarginate mesially. Frontal

area small, subtriangular, impressed. Antennal scapes extending about one-half the distance between the eyes and the posterior corners of the head; club longer than the remainder of the funiculus. Thorax short, robust, with prominent but rounded humeri; about one-half as broad as the head. Pro- and mesonotum convex, together forming a hemispherical mass when viewed in profile, the mesonotum with a faint transverse impression before the abrupt posterior surface. Mesoepinotal constriction pronounced. Epinotum with two acute spines which are little, if any, longer than broad at the base, a lateral ridge extending on each side of the epinotum from the base of spines to the mesoepinotal constriction. Petiole approximately twice as long as broad, with the sides slightly constricted at the base of the node, node when viewed from behind rectangular and with a straight or very indistinctly emarginate superior border. Postpetiole broader than long, slightly more than twice as broad as the petiole, with distinctly blunt, median conules. Gaster smaller than the head, oval, with straight anterior border.

Mandibles, clypeus and frontal area smooth and shining, the first longitudinally striated basally, apically with coarse, widely scattered, piligerous punctures. Head opaque, longitudinally striated in the region of the front and cheeks; remainder rugulose-reticulate throughout with very faint intermediate punctulae. Dorsum of pro- and mesothorax rugulose-punctulate with rather indefinitely distributed smooth areas. Intraspinal area on the epinotum finely punctulate. Pleurae of the thorax for the most part finely punctulate, occasionally with smooth punctureless areas, one of these areas very often present on the mesopleura. Superior surface of the postpetiole smooth and shining. Gaster very smooth and shining, legs less so.

Hairs pale yellowish, long and abundant, suberect to erect, more reclinate on the appendages.

Ferruginous; mandibles and clypeus darker.

Worker. Length 1.3-1.5 mm. Head, excluding the mandibles, slightly longer than broad, with convex sides and very faintly emarginate posterior border. Eyes anterior to the middle of the sides of the head. Clypeus convex, with a median carinula, which is most distinct anteriorly. Antennal scapes slightly surpassing the posterior corners of the head, the club longer than the remainder of the funiculus. Frontal area subtriangular. Thorax similar to that of the soldier, but relatively broader in proportion to the width of the head.

Posterior surface of the mesonotum meeting the mesoepinotal constriction at an almost right angle. Node of petiole and postpetiole not so well developed as that of the soldier, the postpetiole almost globular and lacking the decided conules which are so prominent in the soldier.

Head opaque, very finely and clearly punctulate throughout; anteriorly with faintly discernible longitudinal rugulae: posteriorly rugulose-reticulate. Mandibles, clypeus and frontal area smooth and shining, the first striated basally and with small scattered punctures apically. Thorax opaque, punctulate, with irregular rugulae, most of which occur on the mesonotum and are transverse or longitudinal. Petiole, postpetiole and gaster smooth and shining.

Hairs like those of the soldier; some workers with erect hairs on the antennal scape.

Color same as that of the soldier, but the mandibles and clypeus not quite so dark.

Described from ten soldiers and ten workers, the cotypes of which are in the writer's collection.

The type locality for this species is A. and M. College, Mississippi. The writer found these ants nesting in the soil at the bottom of a small ravine. Most of the specimens were taken at a depth of about six inches, where they were found nesting inside a small hollow root. Only soldiers, workers and larvae were seen. The ants appear to be entirely subterranean in their habits, since when exposed to the light they attempted to hide in the soil. A small proctrotrupid taken in the vicinity of the ants' nest was determined by Mr. A. B. Gahan, of the Bureau of Entomology, as a species of *Hoplogyron,* apparently new. Mr. Gahan states that similar specimens have been received from Harrisburg, Pennsylvania, where they were bred from the egg of the carabid beetle, *Brachynus* sp.

The soldiers of this species, while they show an affinity to the *flavens* group, are entirely different from any members of that group with which the writer is acquainted. The writer has submitted specimens to Dr. W. M. Wheeler and he is also of the opinion that this ant is distinct from any species of *Pheidole* that he has seen.

The most outstanding characteristics of the soldier are the rectangularly shaped head, which is longer than broad, the

distinct coarse teeth on the anterior border of the gula, and the prominent median conules of the postpetiole.

83.—MYRMECINA GRAMINICOLA subsp. AMERICANA Emery. A. and M. College.

A nest of this species found in the soil in a woodland tract on July 12, 1924, contained a number of alate males, workers and larvae. The ant is apparently a very rare species in this state.

Subfamily FORMICINAE.

84—LASIUS NIGER var. NEONIGER Emery. Corinth.

Workers taken at Corinth, in the northern part of the State, agree with the description of this variety. The genus is not well repesented in Mississippi, as the species do not appear to be adapted to this climate. No species of *Lasius* have been taken further south in Mississippi than A. and M. College.

85.—BRACHYMYRMEX NANELLUS Wheeler. Columbus and Sibley.

What is apparently this species of ant has been collected in the State on several occasions. A nest was found in the woods near Columbus. Several small chambers about one-fourth inch in diameter were discovered, about three inches below the surface of the soil. In these were found a dealated female, about 40 or 50 workers and some small larvae.

86.—PRENOLEPIS (NYLANDERIA) PARVULA Mayr. A. and M. College.

This small species of *Prenolepis* has only been taken once in the State. It does not appear to be as common in this vicinity as the species *P. bruesi* Wheeler. The workers of *parvula* can be readily distinguished from those of *bruesi* by the absence of erect hairs on their antennal scapes. On April 1, 1927, a colony of this species was found in the soil on a hill side slope beneath some leaves and a rotten tree branch. In the nest were found one dealate and four alate females, many workers and some medium-sized larvae.

87.—CAMPONOTUS CARYAE DISCOLOR var. CNEMIDATUS Emery. Adaton.

A small number of workers of what the writer believes to be this species were taken from beneath the bark of the trunk of an oak tree, in a low, not well drained patch of woodlands. The workers were very timid and tried to avoid capture by frantically running away or hiding under flakes of bark and remaining perfectly still. Their food is undoubtedly honey dew.

Dacerla downesi, a New Species of Miridae from Oregon (Hemiptera).*

By HARRY H. KNIGHT, Ames, Iowa.

It is of considerable interest to find a third species belonging to the remarkable myrmecoid genus *Dacerla* Bergroth. Mr. W. Downes submitted a series of specimens to the writer for study, with the observation that they had an aspect somewhat different from *Dacerla formicina* Parshley, and he believed they might represent a new species. Mr. Downes found this new form to occur only at an elevation of 5000 ft. or more, while *formicina* Parsh. was always found at lower levels in British Columbia. Upon comparing these forms I have found a good structural character for separating them, namely the relation of the first antennal segment to width of vertex. These differences hold good in a large series of both species, thus it seems advisable to describe the new form. A key is appended for the separation of the three known species of *Dacerla*.

DACERLA DOWNESI n. sp.—Allied to *formicina* Parshley, very similar in coloration but form more robust, antennal segment I not equal to interocular width of vertex.

♀. Length 5.8 mm., width of abdomen 2.4 mm. Head: width 1.29 mm., vertex (narrowest point between eyes) .59 mm.; from dorsal margin of eye to tip of tylus 1.63 mm. Rostrum reaching to base of intermediate coxae. Antennae: segment I, length .50 mm.; II, 2.43 mm.; III, 1.33 m.; IV, 1.30 mm.

♂. Length 5.2 mm., width of abdomen 2 mm. Head: width 1.21 mm., vertex .58 mm.; from dorsal margin of eye

*Contribution from the Department of Zoology and Entomology, Iowa State College, Ames, Iowa.

to tip of tylus 1.48 mm. Antennae: segment I, length .50 mm.; II, 2.57 mm.; III, 1.4 mm., IV, 1.21 mm.

Pubescence and coloration, even to the white marks on venter, similar to *formicina* Parsh. Right genital clasper distinctive, broader and thicker than in *formicina*.

Holotype: ♀ July 29, 1921, Mount Hood, Oregon, alt. 6,000 ft. (W. Downes); Canadian National collection. *Allotype*: taken with the type; author's collection. *Paratypes*: 16 ♂ ♀, taken with the types. ♀ May 21, 1893, Hood River, Oregon (U. S. N. M.).

DACERLA FORMICINA Parshley. Proc. British Columbia Ent. Soc., No. 18, 1921, p. 6.

For comparison with the new species here described the following critical characters are given: ♀. Head: width 1.27 mm., vertex (narrowest point between the eyes) .56 mm. Antennal segment I, length .61 mm. ♂. Head: width 1.26 mm., vertex .56 mm. Antennal segment I, length .65 mm.

Key to the species of Dacerla.

1. Pronotum with posterior margin produced into an erect spine on median line .....*inflata* Uhler
   Pronotum not produced into a spine 2
2. Antennal segment I in length greater than interocular width of vertex .....*formicina* Parsh.
   Antennal segment I in length not equal to interocular width of vertex .....*downesi* n. sp.

Coleopterist in the University of Kansas.

Mr. Warwick Benedict has been appointed Coleopterist in the Department of Entomology, University of Kansas, Lawrence. Mr. Benedict, having retired from a successful business career a few years ago, has devoted himself assiduously to the study of the Coleoptera and has accumulated a large private collection of these insects. A year ago he promised to donate his collections upon his death to the University of Kansas, but recognizing the greater contribution to science he has most generously offered to rearrange the University's collections of Coleoptera incorporating his own material as he proceeds.—H. B. HUNGERFORD, University of Kansas, Lawrence, Kansas.

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., DECEMBER, 1927.

Changes in the News for 1928.

Owing to the desire of the Editor and the Associate Editor of the NEWS to be relieved of much of the work which the conducting of this journal for the past seventeen years has entailed, changes will be made in the personnel, beginning with the number for January, 1928. The NEWS will continue to be published by the American Entomological Society, which retains its ownership therein. The present Editor will remain in editorial charge of the magazine, but will be assisted in this department by Dr. R. G. Schmieder, and Mr. Ernest Baylis as Associate Editors. Mr. John C. Lutz will be Business Manager and with the November, 1927, number has assumed charge of the receipt of subscriptions for 1928. His office for this purpose will be at his residence, 827 North 66th St., Philadelphia. Mr. E. T. Cresson, Jr., Treasurer of the Society, will continue as an Associate Editor. The Editor hereby expresses his hearty thanks to all these here named for the voluntary assistance which they now freely offer to the NEWS or which they have given in the past. Mr. Cresson has devoted an enormous amount of time to the compilation of our monthly lists of Entomological Literature and to looking after the petty details of the business affairs, including the distribution of the magazine, to the detriment of his scientific work and he richly deserves the relief which we believe the new arrangement will give him.

It is with great pleasure that we are able to announce also that, thanks to the Editors of *Biological Abstracts,* the NEWS is able to avail itself of such bibliographical data gathered by this organization at the library of the American Entomological Society, as fall within the scope of the department of Entomological Literature of the NEWS. In this way a duplication

of effort will be avoided in the future. Otherwise the information on current entomological publications given in the NEWS will be as in the past. It may be that as the service rendered by *Biological Abstracts* becomes more widely appreciated, it will be unnecessary for the NEWS to maintain even its lists of entomological articles.

We are anxious to receive suggestions from our subscribers that in their opinion would make the NEWS a better publication.

Dr. L. O. Howard Resigns as Chief, U. S. Bur. Entomology Dr. C. L. Marlatt Appointed to Succeed Him.

After more than thirty-three years of service as chief entomologist of the United States Department of Agriculture, Dr. Leland O. Howard retired on October 17 as the chief of the Bureau of Entomology, and was succeeded by Dr. C. L. Marlatt, a member of the department since 1888, and who for the past five years has been associate chief in charge of the regulatory work of the bureau, and also chairman of the Federal Horticultural Board.

Dr. Howard is now in his fiftieth year of Government service, having joined the entomological branch of the Department of Agriculture in 1878 soon after his graduation from Cornell University. He retires as chief at his own request, but this does not mean retirement from service. He has passed his seventieth birthday, and has asked to be relieved of the administrative duties of his office, but proposes to devote his full energies to the field of entomological research in which he has long been recognized as perhaps the most distinguished investigator. His favorite fields are medical entomology and parasitology.

Dr. Howard was placed in charge of the entomological work of the department June 1, 1894. In the years that have followed, the science of entomology has broadened tremendously and Dr. Howard has guided numerous activities which have been of great service to the American public.

Two campaigns with which Dr. Howard has been identified have captured the public fancy. He was a leader in the mosquito crusade. As early as 1892 he published results of experiments showing that certain types could be controlled by the use of kerosene, and when the mosquitos were identified as disease carriers he was able to recommend methods of

control. His publications on the house fly dating from 1896, to his book, *The House Fly Disease Carrier,* in 1911, were largely responsible for the anti-house fly crusades all over the world in the last 20 years.

Dr. Howard is a member of the three great American associations of limited membership, the National Academy of Sciences, the American Philosophical Society, and the American Academy of Arts and Sciences. He was Permanent Secretary of the American Association for the Advancement of Science for twenty-two years, and its president in 1920-21. He has been made honorary member of many foreign scientific societies and is the only American member of the Academy of Agriculture of France, and has received several decorations among which are the Cross, Chevalier de la Legion d'Honneur, and the Cross, Officier de l'Ordre du Merite Agricole. He has been a delegate to many international assemblies and an officer of six scientific gatherings. In addition to bachelor's and master's degrees from Cornell, his doctorates include Ph. D. (Georgetown 1896), M. D. (George Washington, 1911), LL. D. (Pittsburgh, 1911), and Sc. D. (Toronto, 1920). The bibliography of his publications comprises 941 titles.

Dr. Marlatt, who succeeds Dr. Howard, joined the Department of Agriculture in 1888 and has been closely associated with Dr. Howard's administration. When Dr. Howard was made chief, Dr. Marlatt became assistant chief, and in 1922 associate chief, in charge of regulatory work. He was instrumental in promoting the passage of the Plant Quarantine Act of 1912 and was appointed to administer it. Dr. Marlatt's specialties have been studies of scale insects, sawflies and periodical Cicadas, known as locusts. Dr. Marlatt holds the degrees of B. S., M. S., and D. Sc., all from the Kansas State Agricultural College.—(U. S. Dept. of Agriculture, Office of Information).

[Hearty congratulations go from the NEWS to one of its best friends, Dr. L. O. Howard, on his fruitful, successful and generous direction of the Federal Bureau of Entomology, with our best wishes for many additional years of research. —The EDITORS.]

The Fourth International Congress of Entomology.

The Fourth International Congress of Entomology is to be held in August, 1928, at Cornell University, Ithaca, New York. Previous Congresses have met at Brussels (1910), Oxford

(1912) and Zürich (1925). Every important interest—educational, scientific and economic—will be provided for in the program. Invitations have been forwarded through the State Department to foreign governments to send representatives and later invitations will also be sent to individual entomologists. A program will be arranged in which some of the leading entomologists of the world will take part. It is planned that in the forenoons throughout the week papers of general interest are to be read before the members of the Congress. In the afternoon sections will be formed dealing with (1) Taxonomy, distribution and nomenclature, (2) Morphology, physiology and genetics, (3) Ecology, (4) Medical and Veterinary Entomology, (5) Economic Entomology with its subdivisions relating to forest, fruit, vegetable and cereal insects, bees, insecticides and appliances. According to the number of papers announced each section may be subdivided or several sections may be united. Time will be arranged for an all-day visit to the Geneva Experiment Station, where the forenoon will be spent in looking at the exhibit of spraying machinery and insecticides, in examining the methods and machinery used in controlling the European corn borer, and in observing a demonstration of airplane dusting. The afternoon will be devoted to a general program. In addition, the summer meeting of the New York State Horticultural Society will be held at Geneva on the same day, which will serve to give the visiting foreign entomologists an idea of the general interest of American farmers in entomology. Certain afternoon excursions will also be made to nearby places of entomological interest, while immediately after the meetings some general excursions are planned to Niagara Falls, to entomological museums of eastern cities, and to the laboratories of the U. S. Bureau of Entomology devoted to the study of the Gypsy and Browntail Moths, the Corn Borer and the Japanese Beetle.—O. A. JOHANNSEN, *American Executive Secretary,* Cornell University, Ithaca, New York.

Automobile Collecting. (Odonata, Diptera: Tabanidae).

The following notes on the automobile and its relation to Insects have been inspired by A. O. Larson's recent article on, "Automobile vs. Insects," (Ent. News Vol. 38:47-51, 65-70). I have found the automobile an excellent contrivance for collecting Odonata, especially the faster flying species. In Florida I have collected quite a few specimens of *Coryphaeschna ingens, Anax junius* and *Tramea carolina* from machines, while the only specimen of *Gynacantha nervosa* that I secured from

that region was taken in a like manner. I have added a new Gomphus record *(G. descriptus)* to the Michigan faunal list by picking the specimen from a car parked on a side street in Ann Arbor, and then waiting an hour to ascertain that the Ford had not been driven out of its native State that day.

However important in furnishing a mechanical collecting ground for insects, the automobile assumes the role of an ecological factor in the reaction behavior of certain Diptera, namely the Tabanids. It has been my experience and also the experience of more assiduous collectors in this group, that Tabanids will congregate around a standing car if the engine is hot. It is not beyond a reasonable doubt to say that the Tabanids (especially *Chrysops*) react very positively to heat radiation, being attracted to warm bodies rather than to those that are not. It is due to this fact probably, that an over heated automobile parked in Horse-fly environments will act as a bait for this family of Diptera.

C. FRANCIS BYERS, Ithaca, New York.

The Oriental Moth, Rusicada fulvida, In Pennsylvania (Lepid.: Noctuidae).

In the late summer of 1925, I captured several specimens of *Rusicada fulvida* Gn., at Mt. Airy, Philadelphia; and again, in the early fall of 1926. I was unable to identify the moth. It was not represented in my collection, or in the collections of Mr. Frank Haimbach and the Academy of Natural Sciences of Philadelphia. In the early part of September, 1926, Mr. Arthur H. Napier while walking with me in a neighbor's garden, called my attention to a number of Rose of Sharon (*Hibiscus syriacus*) shrubs which were being defoliated by some caterpillars. We examined the leaves but could not find a larva. Mr. Napier then went to the back of the bushes and soon discovered a number of caterpillars resting on the small branches; it was then quite clear to us, the larvae fed at nights and hid away in the day time. We soon gathered about thirty-five of the caterpillars, which in due time pupated. On the 29th of April of the present year (1927) I had the pleasure of seeing the first specimen of *Rusicada fulvida* in my breeding cage. From April 29 to May 18, twenty-five moths emerged. My thanks are due to Dr. J. McDunnough for identifying this moth.

For description and figure of *Rusicada fulvida* see Seitz, *Macrolepidoptera of the World*, Vol. III of the Palaearctic Section.—PHILIP LAURENT, Philadelphia, Pa.

Entomological Literature

COMPILED BY E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The numbers **within brackets** [ ] refer to the journals, as numbered in the following list, in which the papers are published. The number of volume (**in bold face**), and in some cases the part, heft, &c. **within** ( ), follows; then the pagination follows the colon :

All continued papers, with few exceptions, are recorded only at their first installments.

Papers of systematic nature will be found in the paragraph beginning with (N). Those pertaining to Neotropical species only will be found in paragraphs beginning with (S). Those containing descriptions of new forms are preceded by an *.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

☞ *Note the change in the method of citing the bibliographical references, as explained above.*

Papers published in the Entomological News are not listed.

4—Canadian Ent., Guelph. **6**—Jour., New York Ent. Soc. **7**—Ann., Ent. Soc. America, Columbus, Ohio. **8**—Ent. Monthly Mag., London. **9**—Entomologist, London. **14**—Ent. Zeitschrift, Frankfurt a. M. **17**—Ent. Rundschau, Stuttgart. **21**—The Entomologist's Record, London. **25**—Bull. Soc. Ent. France. **26.**—Ent. Anzeiger, Wien. **33**—Bull. et An., Soc. Ent. Belgique. **48**—Wiener Ent. Zeitung. **49**—Ent. Mitteilungen, Berlin. **68**—Science. **70**—Entomologica Americana, Brooklyn. **79**—Koleop. Rundschau, Wien. **101**—Biological Bul., Woods Hole, Mass. **111**—Archiv f. Naturgeschichte, Berlin. **122**—Zeit. f. Morph. u. Oekol. Tiere, Berlin. **154**—Zool. Anzeiger, Leipzig.

GENERAL.—Bird, Ralph D.—Notes on insects bred from native and cultivated fruit trees and shrubs of southern Manitoba. [4] **49** (6): 124-218. **Born, P.**—Gefährdete Insekten. [Schw. Ent. Anz.] **5**: 1-4, cont. **Brunetti, E.**—Obituary. [8] **63**: 236-237. **Champion, G. C.**—In memoriam. By J. J. Walker. [8] **53**: 197-202, port. **Champion, G. C.**—Obituary. [9] **60**: 215. **Davis, J. J.**—Insects of Indiana for 1926. [Proc. Ind. Acad. Sci.] **36**: 293-308, ill. **DeLong, D. M.**—Entomology in relation to industry. [Sci. Monthly] Nov., **1927**: 429-434. **Hayward, K. J.**—Migration of insects in Northeast Argentine. [9] **60**: 188-189. **Heller, K. M.**—Zur Verwaltungstechnik entomologischer Sammlungen. [49] **16**: 242-246. **Hetschko, A.**—Mitteilungen von Krünitz über der Befruchtung der Blumen durch Insekten. [48] **44**: 74-75. **Horn, W.**—Et Meminisse et vaticinari liceat. [49] **16**: 229-230. **Howard, L. O.**—The Bureau of Entomology and Dr. L. O. Howard. [68] **66**: 391. **Klöti-Hauser, E.**—Ueber die

Anfertigung einfacher mikroskopischer Präparate. Die Präparation des männlichen Gentalapparates der Schmetterlinge. [Schw. Ent. Anz.] **5:** 1-2 cont. **Sherborn, C. D.**—Index animalium. Part 12. Index haani—implicatus. pp. 2881-3136. 1801-1850. **Weiss, H. B.**—Four encyclopedic entomologists of the renaissance. [6] **35:** 193-198.

ANATOMY, PHYSIOLOGY, ETC.—Davis, A. C.—Ciliated epithelium in the Insecta. [7] **20:** 359-362, ill. **Glaser, R. W.**—Studies on the polyhedral diseases of insects due to filterable viruses. [7] **20:** 319-342, ill. **Maziarski, S.**—Sur le tissu musculaire des insectes. [Bul. Intern. Acad. Polon. Sci., Lett.] **1926:** 475-516, ill. **Plavilstshikov, N. N.**—Kopftausch und instinktveränderungen bei insekten. [154] **73:** 229-243. **Saint-Hilaire, K.**—Vergleichend-histologische untersuchungen der malpighischen gefässe bei insekten. [154] **73:** 218-229. **Verlaine, L.**—Le déterminisme du déroulement de la trompe et la physiologie du gout chez les lépidoptères. (Pieris rapae Linn.) [33] **64:** 147-181. **Whedon, A. D.**—The structure and transformation of the labium of Anax junius. [101] **53:** 286-295, ill.

ARACHNIDA AND MYRIOPODA.—Thomas, M.—L'Instinct chez les Araignées. [33] **61:** 185-199.

(N) **Marshall, R.**—Hydracarina of the Douglas Lake region. [Tr. Am. Micro. Soc.] **46:** 268-285, ill.

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Contribution a l'etude systématique et biologique des Termites de l'Indochine. Par J. Bathellier. This monographic work is contained in pages 125-365 of "Faune des Colonies Françaises, Tom. 1, and contains many illustrations and a colored plate. Altho treating only of the Indochina species, its biological nature may make it interesting to American students of this group.

HISTOLOGICAL TECHNIQUE, By B. F. KINGSBURY and O. A. JOHANNSEN. John Wiley and Sons, Inc., New York, 1927, vii, 142 pp., 16 figs. Price, $2.25.—This book, although designated as a guide for a laboratory course in histology, might well be on the desk of every entomologist interested in the structure of insects. It not only contains the cream of Professor Kingsbury's experiences in the field of general histology, but to it are added Professor Johannsen's studies in insect histology. In the chapter on "Special methods" the authors detail the various methods for the treatment and sectioning of chitin as well as for staining it. In another section of the book entitled "Special methods for various forms", under the heading "Arthropoda", means for the study of the tracheal and nervous systems of insects are discussed. Directions for the sectioning of arthropod eggs and embryos reveal the special treatment each must receive. Near the close of the book consideration is given to the special preservatory methods required for coccids and other forms. In the words of the publishers, "the goal of the text, from the side of histological technique, is a refined method of analysis from the chemico-physical as well as the morphological aspect, and the interpretation of our morphology in terms of phvsiology".—WM. P. HAYES, University of Illinois, Urbana, Illinois.

OBITUARY.

As announced in the NEWS for November, GEORGE CHARLES CHAMPION died at Horsell, Woking, Surrey, England, on August 8, 1927. Obituary notices have appeared in the *Entomologists' Monthly Magazine* and *The Entomologist* for September, and in *Nature* for September 17th. The first mentioned is accompanied by a portrait. These three supply biographical information with particular reference to his own country. Champion has, like many others, a special interest for American entomologists by reason of his taxonomic work on Coleoptera and Heteroptera in the *Biologia Centrali-Americana.*

He was born April 29, 1851, son of a Walworth (London) clock- and watch-maker. After having actively studied British Coleoptera, he was engaged by Messrs. Godman and Salvin to make collections for the *Biologia* in Central America, and began his work at San José, the Pacific port of Guatemala, on March 16, 1879. In April, 1881, he proceeded to Panama, where he remained until May, 1883. His itinerary was first published in the NEWS for February, 1907, and subsequently in more detail in the *Introductory Volume* (1915) of the *Biologia.* He contributed an account of his experiences and methods, under the title *Tropical Collecting,* to the *Entomologists' Monthly Magazine* for 1884. Discussing the inserting of dates when certain species of Central American insects were collected, he wrote, in a letter of March 9, 1901, "It is not very important to my mind, for tropical countries"; in this he shared the opinion of Schaus, but not of Gundlach, nor, if I may add, my own.

On his return to England he continued his connection with Messrs. Godman and Salvin and the former records this appreciation of his work in the Preface to the same Introduction.

To my Secretary, Mr. G. C. Champion, I am specially indebted for the valuable assistance he has rendered as collector, contributor, and also as subeditor, in which last capacity his advice has been of inestimable value. His knowledge of Entomology, especially of Coleoptera and Rhynchota, has made him one of our most important contributors, and he has either undertaken alone, or shared in the production of, no less than nine volumes of the 'Biologia'.

These nine volumes were Coleoptera, Vol. III, part 1, Serricornia: Elateridae—Dascillidae; Vol. IV, parts 1 and 2, Heteromera; Vol. IV, part 3, in cooperation with D. Sharp, Curculionidae; parts 4, 5 and 7, continuation of the Curculionidae; VI, part 2 with J. S. Baly, Phytophaga (part). Rhynchota Heteroptera, Vol. II: Tingitidae to Corixidae. From the data furnished in the Introductory Volume, it appears that of the Heteromera Champion enumerated 1776 species of which he described 1295 as new; of the Curculionidae treated in parts 4, 5 and 7, he enumerated 2617 species and described 2094 of them as new. For the Cassididae in the Phytophaga the corresponding figures are 227 and 55 and for the volume on Heteroptera 592 and nearly half that number. It will be seen, therefore, that Champion described above 3400 new species in these groups of Coleoptera alone. The dates of publication of his contributions to the *Biologia* fall between 1884 and 1911.

In this connection it is of interest to quote from Champion's letters to the writer:

I have been labeling all the beetles dealt with in B. C. A. by myself. Have just got through about 2500 species of Curculionidae and every specimen now bears a printed name label . . . For some time past I have been sending and receiving co-types of Curc[ulionidae] to U. S. N. Mus. and they are returning the compliment. It is better for both museums. (1. xii. 1910).

The Biologia Curculionids worked out by me have just been presented [to the British Museum]—2617 species and about 19,000 specimens. (24. 2. 1911).

After the *Introductory Volume*—the last of the whole series—had appeared, he wrote:

It certainly was a great relief to get that final volume issued, so that the whole work might be closed up. I must say, at Mr. Godman's great age, that the matter was doubtful. However, he lived to see it through and is still fairly well in health. This brings my 36-year work to a close anyway as regards the 'Biologia'. (Nov. 16th, 1915).

The *Biologia* did not conclude Champion's work on Central American Coleoptera, however, for a number of papers by him, on material received after the volumes of that series were

The several numbers of the NEWS for 1927 were mailed at the Post Office at Philadelphia, Pa., as follows:

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